

REMARKS

Allowed Claims

Confirmation of the allowance of claims 3-11, 13, 14, 33 and 35-38 is acknowledged with appreciation.

Allowable Claims 15-21, 23 & 25-31

The indication that each of claims 15-21, 23 and 25-31 would be allowed if rewritten in independent form is acknowledged with appreciation.

In the prior Response, claim 15 was placed in independent form and has been slightly amended herein only for purposes of clarification which does not affect the scope thereof. Accordingly, claim 15 and each of claims 16-21, 23, and 25-31 ultimately dependent thereon is now in a proper form and condition for allowance and such action is respectfully requested.

§103 Claim Rejection

Each of the remaining claims 1, 2, 32 and 39 was rejected in the latest Office Action as being unpatentable over Reef et al in view of Fournier.

Reef

Reef discloses a fuel pump module with a jet pump having a variable area nozzle provided by a flexible duck bill valve 46 which is supplied with relatively low pressure fuel returned from the engine through return fuel line 20. As acknowledged in the Office

Action Reef does not disclose, suggest or teach any restrictor plate as recited in the claims or any restrictor plate at all.

Fournier

Fournier discloses a fuel pump module 10 with a fuel pump 14 with an outlet 20 through which it supplies high pressure fuel to an engine through a conduit 24. The pressure of the fuel supplied to the engine is controlled and maintained substantially constant by a pressure regulator 22 which discharges excess fuel (not consumed by the engine) through its outlet 28 into a canister 26 at substantially atmospheric fuel pressure.

Contrary to the contention in the Office Action,

1. Fournier does not have any jet pump nozzle supplying fuel to the reservoir,
2. A pump inlet directly communicating with the reservoir, or
3. A restrictor plate between the pump outlet and any jet pump nozzle.

The outlet 28 of the pressure regulator 26 is not a nozzle and most certainly is not a jet pump nozzle. The fuel pump inlet 16 communicates with and draws fuel from the fuel tank 12 through a filter 18. The plate 30 with the orifice 90 is between the bottom of the reservoir 26 and the filter 18 and the pump inlet 16, not the pump outlet 20. The function of the orifice 90 is to limit the rate at which fuel flows out of the reservoir and when the tank is virtually empty, to supply fuel from the reservoir through the interior of the filter 18 to the inlet 16 of the fuel pump.

Undisputedly, Fournier does not disclose any jet pump at all or any jet pump having any nozzle, or any jet pump nozzle communicating with and receiving high pressure fuel from the fuel pump.

As previously requested, if the Examiner continues to assert the erroneous interpretation of Fournier set forth in the Office Action, it is respectfully requested that the Examiner identify by column and line number and element reference number the specific basis on which the interpretation in the Office Action of Fournier is based so that applicants can evaluate and respond to the Examiner's interpretation. Applicants simply cannot effectively respond to broad assertions which are believed to be unsupported by the Fournier reference literally and as it would be interpreted by persons of ordinary skill in the art.

Amended Claim1

As amended, claim 1 defines a fuel pump module having, among other things, a reservoir, a fuel pump having an outlet of high pressure fuel, a jet pump having a fuel inlet, a fuel outlet, and a jet nozzle, the jet nozzle of the jet pump having an outlet and an inlet receiving high pressure fuel from the outlet of the fuel pump which fuel flows through the inlet and outlet of the nozzle to entrain fuel through the inlet of the jet pump and discharge the entrained fuel through the outlet of the jet pump and into the reservoir, and at least one restrictor plate between the outlet of the fuel pump and the inlet of the nozzle and having an orifice upstream of the inlet of the nozzle and restricting the flow of high pressure fuel flowing from the outlet of the high pressure pump through the inlet of the jet nozzle.

Amended Claim 1 is Patentable

Neither the specific concept, construction and arrangement nor the significant practical advantages of the pump module defined by amended claim 1 is disclosed, suggested or taught to persons of ordinary skill in the art in view of the proposed combination of references. These references, whether considered alone or in combination, do not disclose, suggest or teach to skilled persons applicants' specific concept of a pump module with a jet pump having a nozzle of the jet pump with an inlet receiving high pressure fuel from the outlet of the fuel pump and having a restrictor plate between the pump outlet and the inlet of the nozzle with an orifice in the plate restricting the flow of high pressure fuel from the pump outlet through the nozzle of the jet pump. This specific construction has the significant practical advantages of increasing efficiency of the pump module and under maximum engine fuel demand conditions delivering a greater proportion of the high pressure fuel output of the electric fuel pump to the engine to meet its peak fuel demand, reduces noise and power consumption, greatly improves the output of the fuel system during critical cold weather, cold engine start-up and warm-up conditions and is of simple design and economical manufacture and assembly. It is well understood by persons of ordinary skill that with battery operated electric fuel pumps, their overall efficiency drops significantly during cold weather cold start-up conditions and is one of the critical conditions which must be satisfied in designing fuel pump modules.

Furthermore, these references do not teach the specific construction and arrangement defined by amended claim 1. Indeed, the Reef reference does not disclose any restricted orifice at all, much less a plate having an orifice restricting the flow of high

pressure fuel from the pump into and through the nozzle of the jet pump. Fournier does not disclose, suggest or teach to skilled persons any jet pump at all or any jet pump having a jet pump nozzle and/or any orifice restricting flow of high pressure fuel from the pump outlet through the jet pump nozzle. To the contrary, Fournier teaches away from applicants' invention because it does not disclose any jet pump at all and merely shows a reservoir having an orifice in its bottom to (1) control the rate at which the reservoir is filled with fuel, (2) when the fuel tank is essentially empty to supply fuel to the inlet, not the outlet, of the pump and (3) when the pump is not operating to backflush the filter by fuel flowing out of the reservoir.

Moreover, since these references do not disclose applicants' concept, its practical advantages, nor contain any suggestion or teaching that they should be combined, they must have been selected and their combination proposed utilizing the teachings of applicants' invention which hindsight selection, interpretation and application of the prior art is explicitly prohibited in applying the non-obviousness test of §103. In addition, neither of these references nor the skill of the art provides any motivation, suggestion or teaching to combine them and even if they were combined, they do not achieve or result in applicants' specific construction and arrangement as defined by amended claim 1 nor its significant practical advantages for at least the foregoing reasons. Accordingly, reconsideration and allowance of claim 1 as amended is respectfully requested.

Claim 2

Claim 2 is dependent on claim 1 and hence defines patentable subject matter under §103 over these references for at least the foregoing reasons and should be allowed.

Claim 32

Amended claim 32 may be broader in some respects than amended claim 1 but nevertheless it defines patentable subject matter over these references for at least the foregoing reasons and as amended should be allowed.

Claim 39

Claim 39 is dependent on claim 32 and hence defines patentable subject matter for at least the reasons for which claim 32 does so and should be allowed.

Conclusion

Allowable claim 15 is in independent form and hence claims 15-21, 23 and 25-31 are now in a proper form and condition for allowance and should be allowed.

Claims 3-11, 13, 14, 33 and 35-38 have been allowed which is acknowledged with appreciation.

The remaining independent claims 1 and 32 and claims 2 and 39 dependent thereon have been further amended herein and are believed to define patentable subject matter under §103 for the foregoing reasons and allowance thereof is respectfully requested.


If after considering this Response the Examiner is of the view that any of the claims are not in a condition for allowance, a telephone interview with applicants' undersigned attorney William Francis is requested so that immediate consideration can be given to any further amendments suggested by the Examiner or otherwise needed to place all the claims in a condition for allowance. The Examiner is asked to either schedule or initiate this interview by telephoning William Francis at 248-689-3500, Ext 153, who normally can be reached Monday through Friday between 9 a.m. and 5 p.m.

It is believed no additional claim fees are due with this Response. If, however, the Patent Office calculations indicate any additional claim fees are due, please charge them to our Deposit Account No. 50-0852.

Respectfully submitted,

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By 

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